Polypharmacy & Deprescribing

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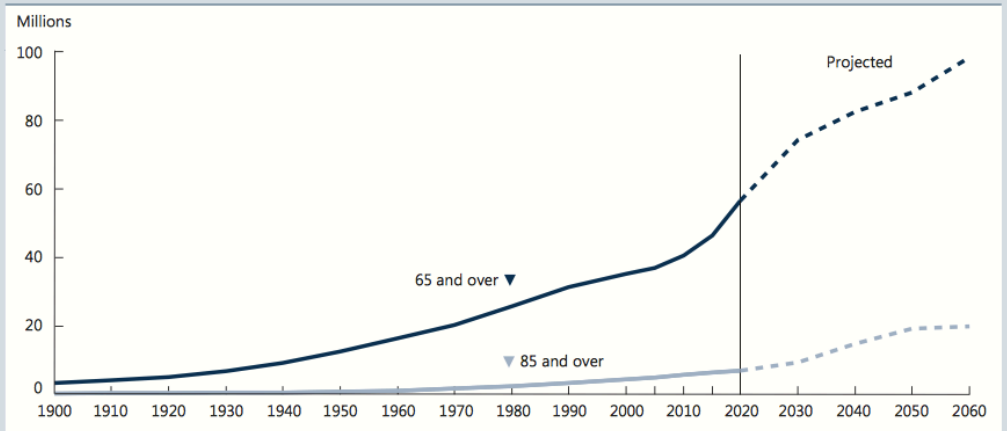
- I have no conflicts of interest to disclose

Objectives

- Describe the concept and impact of polypharmacy in older adults
- Review the benefits of and potential barriers to deprescribing
- Describe the process of rational deprescribing and demonstrate practical strategies of application to clinical scenarios

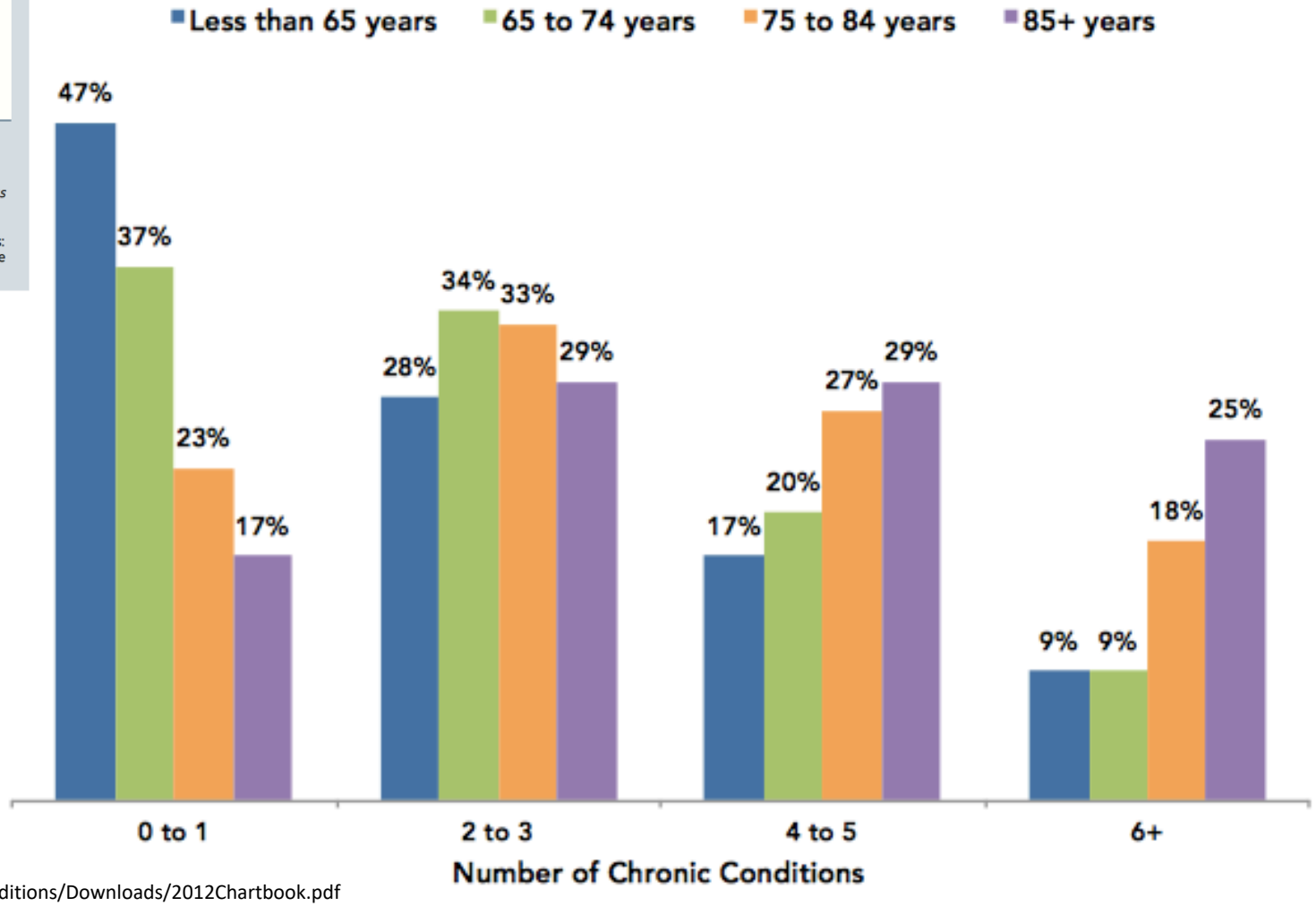
Population age 65 and over and age 85 and over, selected years, 1900–2014, and projected years, 2020–2060



NOTE: Some data for 2020–2050 have been revised and differ from previous editions of *Older Americans.*

Reference population: These data refer to the resident population.

SOURCE: U.S. Census Bureau, 1900 to 1940, 1970, and 1980, U.S. Census Bureau, 1983, Table 42; 1950, U.S. Census Bureau, 1953, Table 38; 1960, U.S. Census Bureau, 1964, Table 155; 1990, U.S. Census Bureau, 1991, 1990 Summary Table File; 2000, U.S. Census Bureau, 2001, *Census 2000 Summary File 1;* U.S. Census Bureau, Table 1: Intercensal Estimates of the Resident Population by Sex and Age for the U.S.: April 1, 2000, to July 1, 2010 (US-EST00INT-01); U.S. Census Bureau, 2011. *2010 Census Summary File 1;* U.S. Census Bureau, Annual Estimates of the Resident Population for Selected Age Groups by Sex for the United States, States, Counties, and Puerto Rico Commonwealth and Municipios: April 1, 2010, to July 1, 2014 (PEPAGESEX); U.S. Census Bureau, Table 3: Projections of the Population by Sex and Selected Age Groups for the United States: 2015 to 2060 (NP2014-T3).



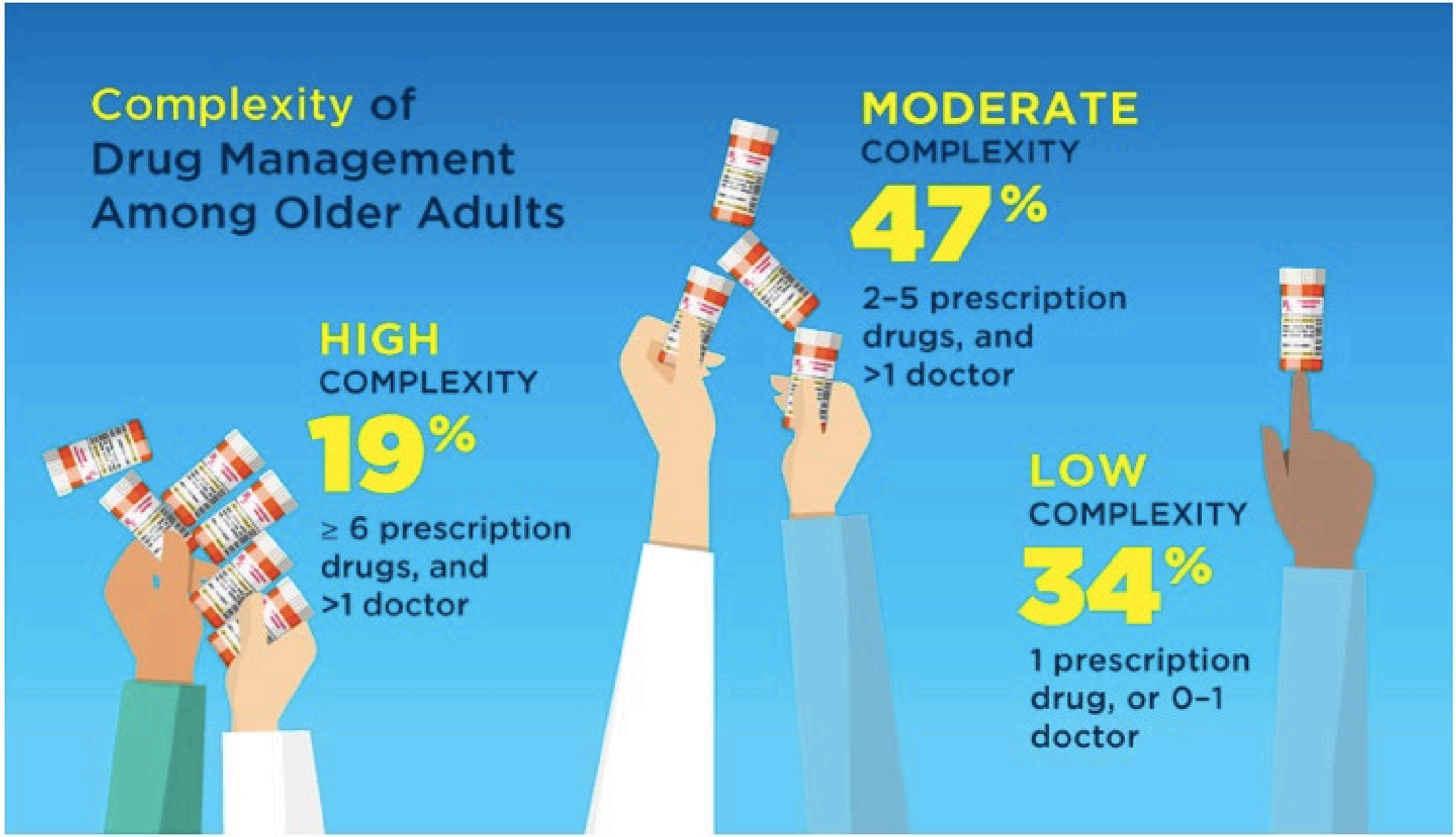
https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/2012Chartbook.pdf

Scope of the problem

- 30% of patients >65 are prescribed >5 medications
- ~1 in 5 medications in older adults may be inappropriate
- Single most predictor of harm is # of medications

1. QatoDM,AlexanderGC,ContiRM,JohnsonM, Schumm P, Lindau ST. Use of prescription and over-the-counter medications and dietary supplements among older adults in the United States. *JAMA*. 2008;300(24):2867-2878.
2. RougheadEE,AndersonB,GilbertAL. Potentially inappropriate prescribing among Australian veterans and war widows/widowers. *Intern Med J*. 2007;37(6):402-405
3. SteinmanMA,MiaoY,BoscardinWJ,Komaiko KD, Schwartz JB. Prescribing quality in older veterans: a multifocal approach. *J Gen Intern Med*. 2014;29(10):1379-1386
4. BudnitzDS,LovegroveMC,ShehabN,Richards CL. Emergency hospitalizations for adverse drug events in older Americans. *N Engl J Med*. 2011;365 (21):2002-2012.

$$\text{Value} = \frac{\text{Quality}}{\text{Cost}}$$



http://ihpi.umich.edu/news/older-americans-don't-get-—-or-seek-—-enough-help-doctors-pharmacists-drug-costs-poll-finds. Accessed Oct 5, 2018

Why does polypharmacy happen, even though we know its not right?!

- Silos of excellence
- Time constraints
- Concern about multiple prescribers with input
- Competing interests
  - “Alerts” for quality measures, but how often do you get a message to notify you that your patient is on 34 medications?

Choosing Wisely®

An initiative of the ABIM Foundation

American Society of Health-System Pharmacists

View all recommendations from this society

June 1, 2017

Do not prescribe medications for patients on five or more medications, or continue medications indefinitely, without a comprehensive review of their existing medications, including over-the-counter medications and dietary supplements, to determine whether any of the medications or supplements should or can be discontinued.

http://www.choosingwisely.org/clinician-lists/ashp-prescribing-medication-for-patients-on-five-or-more-meds/

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American Geriatrics Society

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Released February 21, 2013; revised April 23, 2015

Don't use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation or delirium.

Large scale studies consistently show that the risk of motor vehicle accidents, falls and hip fractures leading to hospitalization and death can more than double in older adults taking benzodiazepines and other sedative-hypnotics. Older patients, their caregivers and their providers should recognize these potential harms when considering treatment strategies for insomnia, agitation or delirium. Use of benzodiazepines should be reserved for alcohol withdrawal symptoms/delirium tremens or severe generalized anxiety disorder unresponsive to other therapies.

http://www.choosingwisely.org/clinician-lists/american-geriatrics-society-benzodiazepines-sedative-hypnotics-for-insomnia-in-older-adults/

3 **Avoid using medications other than metformin to achieve hemoglobin A1c<7.5% in most older adults; moderate control is generally better.**

Reasonable glycemic targets would be:

7.0 – 7.5% in healthy older adults with long life expectancy

7.5 – 8.0% in those with moderate comorbidity and a life expectancy < 10 years

8.0 – 9.0% in those with multiple morbidities and shorter life expectancy.

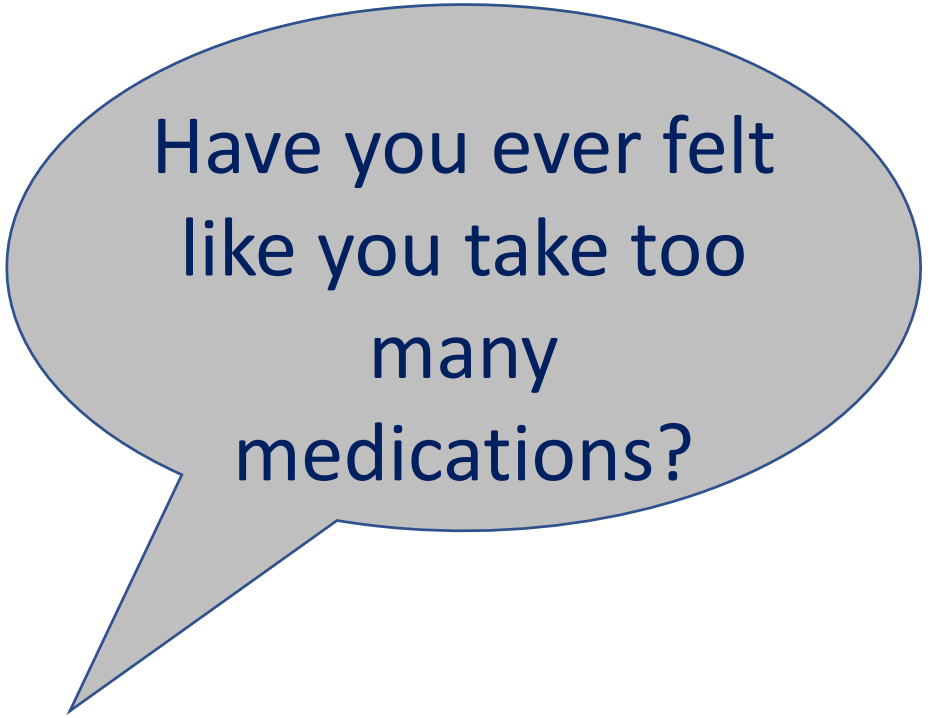
http://www.choosingwisely.org/clinician-lists/american-geriatrics-society-medication-to-control-type-2-diabetes/

Anticholinergic Burden

- Taking one or more medications with anticholinergic properties

Rational Deprescribing

- Every interaction with a patient is an opportunity to readdress their medications
- Shared decision making
- Open the doors of communication
- Be brave



Rational Deprescribing Strategy

- Purpose is not to discontinue or deny patients medications that are indicated/appropriate for the sake of reducing the quantity

RATHER. . .

- To improve the value of the care the patient is receiving

"Systematic process of identifying and discontinuing drugs in instances in which existing or potential harms outweigh existing or potential benefits within the context of an individual patient's care goals, current level of functioning, life expectancy, values, and preferences"

Scott IA, Hilmer SN, Reeve E, Potter K, Le Couteur D, Rigby D, et al. Reducing inappropriate polypharmacy: the process of deprescribing. JAMA Intern Med. 2015;175:827-34. [PMID: 25798731] doi:10.1001/jamainternmed.2015.0324

Take 2 minutes and talk with your neighbor about the following:

1. What medications do you deprescribe most often? Why?

2. What medications do you find most difficulty to deprescribe? Why?

Table 1. Common Examples of Medications That May No Longer Be Indicated

Medications	Comment
Diuretics	Stop if not used for heart failure or hypertension[18,19]
Cholinesterase inhibitors and memantine	Discontinue in patients with advanced dementia, weight loss, syncope, falls, bradycardia, GI side effects, or agitation[20]
Vitamins	May no longer be indicated in those consuming a well-balanced diet[18]
Antipsychotics	Behaviors may no longer be present; consider safer alternatives[19]
Oral hypoglycemic agents	Avoid long-acting sulfonylureas; target HbA_{1c} < 8%[21]
Antiemetics	Rarely needed long-term; trial discontinue[18]

Abbreviations: BP, blood pressure; GI, gastrointestinal; HbA_{1c}, hemoglobin A_{1c}; NSAID, nonsteroidal anti-inflammatory drug; PPI, proton pump inhibitor.

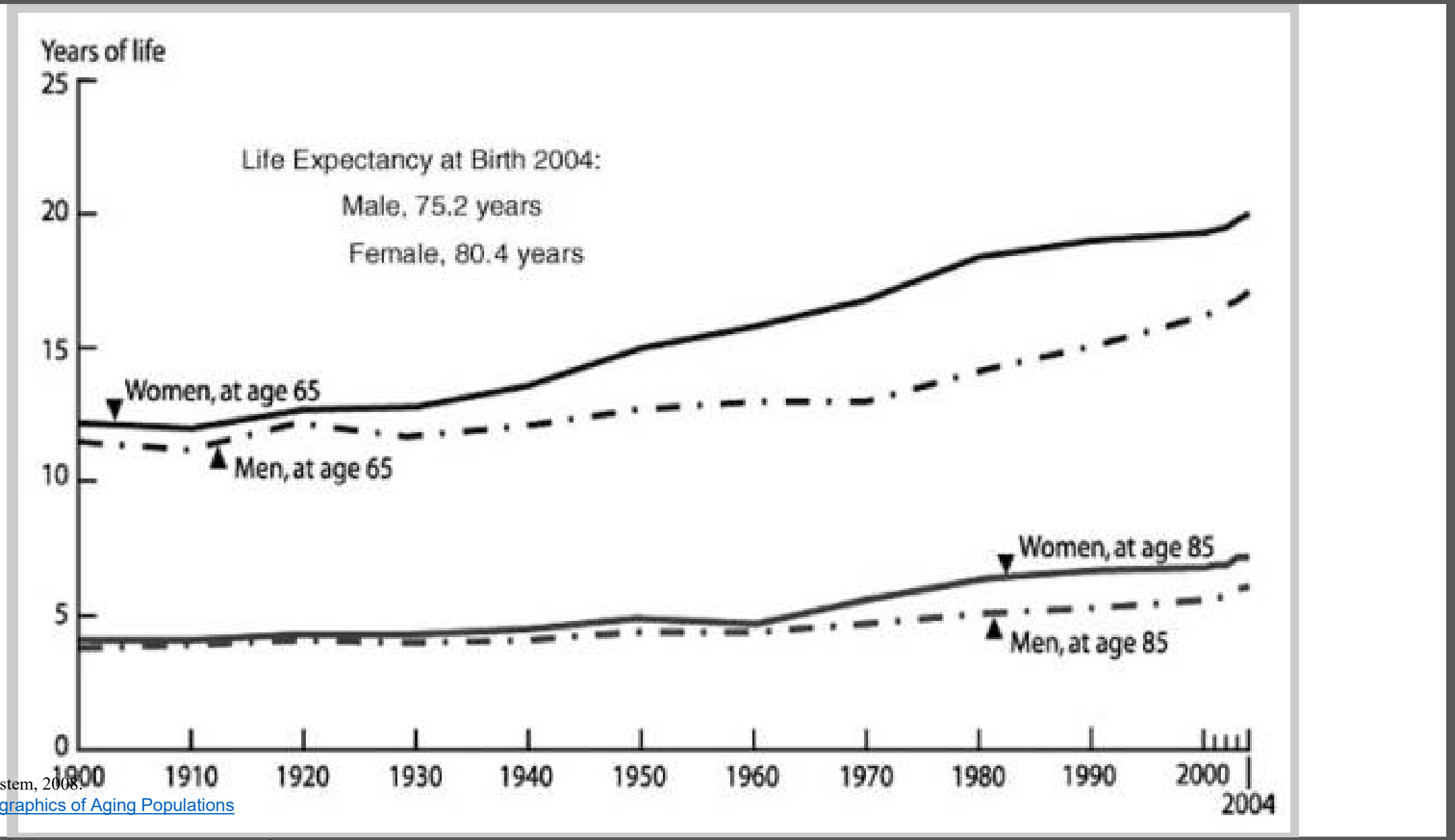
1 - Ascertain all drugs the patient is currently taking and the reasons for each one

- "Brown bag" med review – Review everything they take, including OTC
  - Categorize medications
    - Disease/symptom controllers
    - Preventive medications

- Is there a medical indication for each medication that is consistent with their medical history?
  - Example 1 – Benzodiazepines
  - Example 2 – Antihistamines
  - Example 3 – PPIs
  - Example 4 – Antipsychotics

2 - Consider overall risk of drug-induced harm in individual patients in determining the required intensity of deprescribing intervention

- Drug-drug interactions
- “High risk” medications
- Patient factors:
  - Age >80 yo
  - Cognitive impairment
  - Multiple comorbidities
  - Substance use disorder
  - Multiple prescribers
  - Past or current nonadherence
  - Limited life expectancy



National Vital Statistics System, 2008.
From: 2, Size and Demographics of Aging Populations

Providing Healthy and Safe Foods As We Age: Workshop Summary.
Institute of Medicine (US) Food Forum.
Washington (DC): National Academies Press (US); 2010

3 - Assess each drug for its eligibility to be discontinued:

- No valid indication
- Part of a prescribing cascade
- Actual or potential harm of a drug clearly outweighs any potential benefit
- Disease and/or symptom control drug is ineffective or symptoms have completely resolved
- Preventive drug is unlikely to confer any patient-important benefit over the patient’s remaining lifespan
- Drugs are imposing unacceptable treatment burden

Prescribing Cascade

- Consider that common geriatric syndromes may actually be the result of medication side effects/adverse drug events.
  - Falls
  - Constipation
  - Anorexia/weight loss
  - Delirium

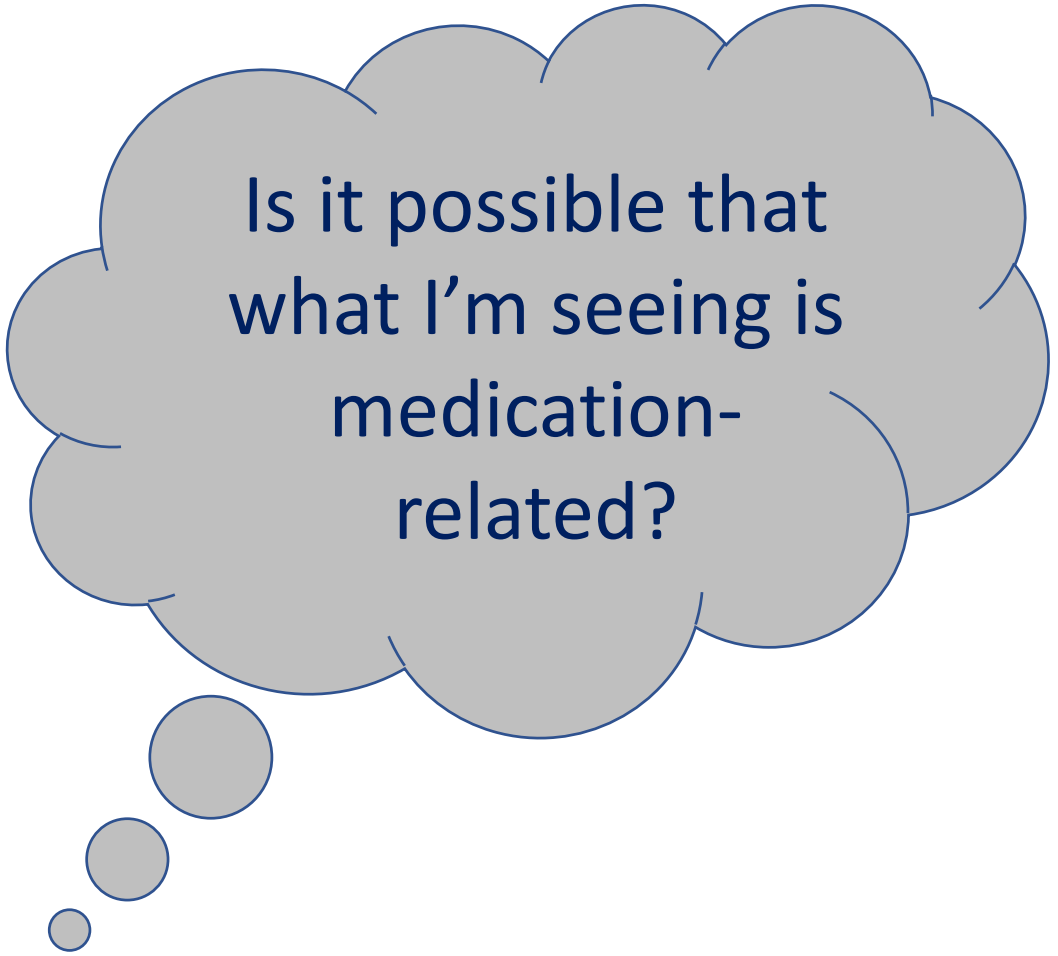


Table 3. Common Examples of Prescribing Cascades

Initial Medication	Adverse Effect	Subsequent Medication
Donepezil, rivastigmine, Galantamine	Urinary incontinence	Antimuscarinic agent (eg, oxybutinin, tolterodine, solifenacin, etc[1,24])
Antimuscarinic agents, Vasodilators, diuretics, calcium channel blockers, β-blockers, ACE inhibitors, NSAIDs, opioid analgesics, sedatives, statins	Dizziness	Meclizine[24]
NSAIDs	Hypertension	Antihypertensive[24]
Amlodipine	Edema	Furosemide[1]
Thiazide diuretics	Gout	Allopurinol or colchicine[24]
Antipsychotics	EPS	Carbidopa/levodopa[24]
Digoxin, opioids, NSAIDs, nitrates, ACE inhibitors,	Nausea	Prochlorperazine, proton pump inhibitor[24]

4 - Prioritize drugs for discontinuation

- Harm > Benefit
  - Consider AGS Beer's Criteria
    - Benzodiazepines
    - Psychotropics
    - Opioids
    - NSAIDs
    - Anticoagulants
    - Digoxin
    - Insulins/hypoglycemics
    - Anticholinergics
  - STOPP
- Ease of discontinuation
  - May encourage trust in the deprescribing process
- Time to benefit period
- Prescribing cascade

American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults

By the American Geriatrics Society 2015 Beers Criteria Update Expert Panel

Potentially inappropriate medications (PIMs) associated with poorer health outcomes including:

- Falls
- Confusion
- Mortality

Not absolute

5 - Implement and monitor drug discontinuation regimen

- Only change 1 medication at a time
- Communication is essential!
- Initially more frequent visits

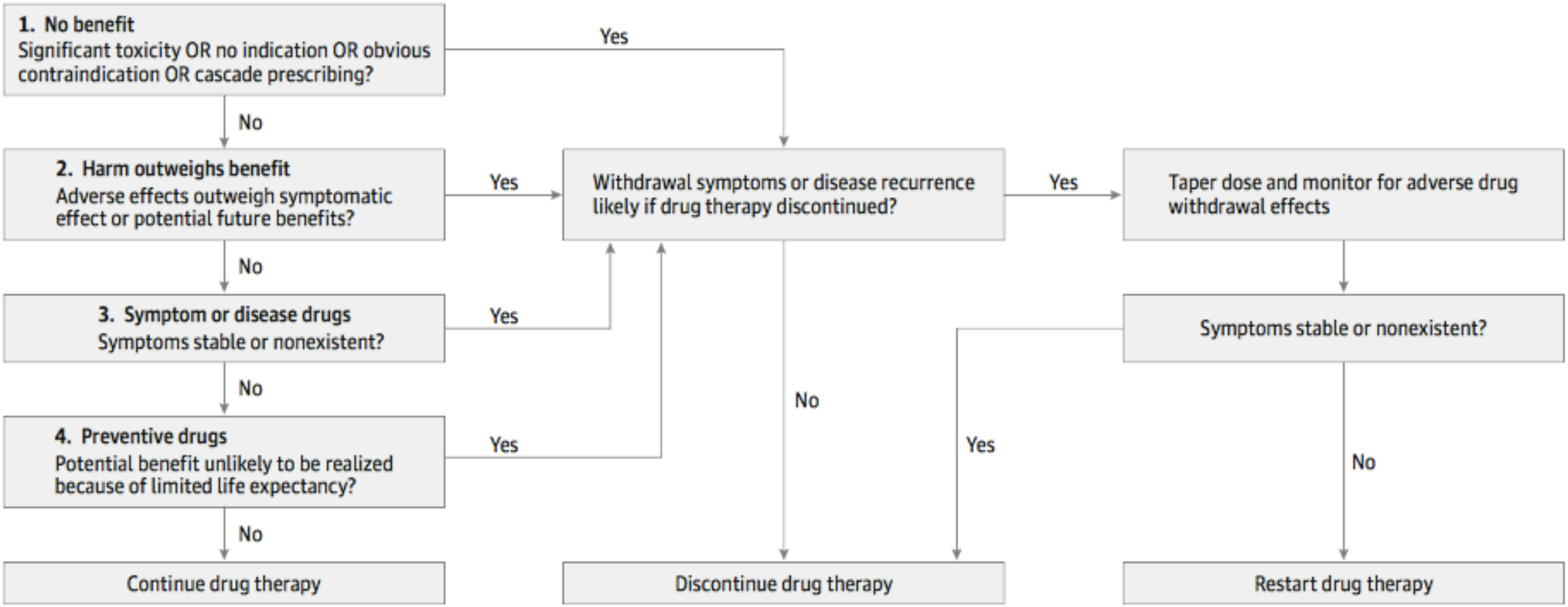
TABLE. Commonly prescribed medications that increase fall risk in older adults[a]

Category	Examples	Management
Benzodiazepines	Clonazepam, alprazolam, diazepam, lorazepam	Avoid: stop when feasible, taper to lower doses
Other sedatives	"Z-drugs": zaleplon, zolpidem, eszopiclone	Choose safer insomnia treatments (behavioral therapy, trazodone, melatonin)
Strong, centrally acting anticholinergics and antihistamines used for non-CNS indications	Diphenhydramine; loratadine; overactive bladder medications (oxybutynin, tolterodine, fesoterodine); bowel medications (eg, hyoscyamine, dicyclomine)	Stop: if treatment is needed, switch to a non-CNS penetrant antihistamine (cetirizine) or anticholinergic (trospium, loperamide)
Tricyclic antidepressants	Particularly tertiary amine (amitriptyline, imipramine, doxepin)	If a tricyclic is needed, use a secondary amine (nortriptyline, desipramine)
Some antipsychotics	First-generation antipsychotics (high potency via inducing parkinsonism; low potency via parkinsonism and anticholinergic effects); olanzapine	Use a second-generation antipsychotic with low or no anticholinergic effects (risperidone, aripiprazole, quetiapine)
Some mood stabilizers and anti-epileptics	Lithium, valproate, carbamazepine, oxcarbazepine, topiramate (if at high doses/levels); barbiturates (such as phenobarbital and primidone); gabapentin or pregabalin (if at high doses)	Use minimal effective dose; stop or avoid sedatives that can magnify fall risk
Some psychotropic combinations	Paroxetine + bupropion; high-dose fluoxetine or duloxetine + bupropion; multiple sedatives	Avoid or use reduced doses

[a]Note: most of these medications also cause cognitive impairment and increase risk of delirium in older adults (eg, centrally acting anticholinergics, antihistaminergics, and sedatives).

http://www.psychiatrictimes.com/sites/default/files/1803lenzeTable.png

Figure. Algorithm for Deciding Order and Mode in Which Drug Use Could Be Discontinued



Case

84 year-old male admitted to the trauma service af
bilateral SDH. Hospital course complicated by deliriu

Thoughts on this medication list?

- Medical history:
  - Dementia – at least 6 years, still ambulatory, able to perform ADLs with cues, frequently awakens/attempts to wander at night
  - HTN
  - Type 2 diabetes (last A1c 6.2%)
  - BPH

- Medications:
  - Amlodipine 5mg daily
  - Aspirin 81mg daily
  - Quetiapine 25mg in the morning, 50mg at night
  - Glimepiride 2mg daily
  - Lorazepam 0.5mg at bedtime – using 2-3 times per week
  - Melatonin 3mg at bedtime
  - Tamsulosin 0.4mg in the evening

Questions?